ON SCENE

THE NATIONAL MARITIME SAR REVIEW

DEPARTMENT OF TRANSPORTATION

U.S. COAST GUARD

Issue No. 1–80

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Commercial Air MEDEVAC Service

When the "ON SCENE" staff hears about an air ambulance service we publish the information in the interest of Search and Rescue. The name of a new one on us is Community Ambulance Inc. It makes the following claims:

a. Maintains an office in Milwaukee, Wisconsin; service available 24 hours per day. Call collect telephone number is (414) 645-5515.

b. Coverage of the entire United States and Europe.

c. Service consists of fully trained professionals with special training in air transfers.

d. Will also transport donor organs or blood.

If there is an air medevac service in your area, send the information to the "ON SCENE" magazine and we will pass it on.

Measuring the Current?

"A datum marker buoy should have been used to measure the water current."---This statement has been a conclusion on a number of SAR case studies in recent years. What it seems to be saying is that there is still a lack of understanding of the value of actual current measurements during a SAR case.

MEASUREMENTS vs CALCULATIONS

All of the means for estimating sea current and wind current are deficient. They should only be used when it is not possible to get on scene measurements of the actual combined water currents. Today, operational units have two current measuring tools: the Expendable Surface Current Probe (ESCP) and the Datum Marker Buoy (DMB). The ESCP gives a quick measurement of the instantaneous current at a datum, while the DMB provides a means for long term averaging of the water current in a search area. With these two tools Coast Guard units should rarely be surprised by deviations of actual currents from recorded or calculated currents.

ON SCENE is a SAR publication published by the Commandant, U. S. Coast Guard as a source of information concerning current and proposed procedures as well as new developments in SAR. Articles contained herein are non-record and non-directive.

WHAT BOAT IS THAT?

By CAPT W. J. Brogdon, USCG

You are briefing a coxswain prior to a daylight search for a 40 foot cabin cruiser, which failed to return to port last evening. The message says, "40 FT. PACEMAKER C/C AQUARIUS OF NEWPORT, WHITE HULL AND DECKHOUSE, BIMINI TOP, GREEN BOTTOM PAINT," and goes on to give the rest of the details of the case.

How can you make it easier to find this boat among the many of similar size and color, which you know will be in the search area? First, you need a better description. Does the boat have outriggers? A tuna tower? Radar? A bow pulpit? Radar? The presence or absence of these features gives the boat a distinctive appearance, and will save you a good deal of time by eliminating unlikely prospects.

Secondly, What does the boat look like? Many manufacturers build more than one model having the same overall length. In the case of Pacemaker, the 40 ft. sportfisherman has a completely different profile from the 40 ft. motor yacht. Find out which one you are looking for, and your job will be much easier.

Magazine advertisements and boat tests, and boat show literature, are extremely useful. So are the "buyer's guide" issues which come out early in the year. So read the magazines, hound the boat shows, and become familiar with the various models of boats. Some stations make up a loose-leaf folder with pictures of the popular boats.

Another good source of information is the paperback book Boatwatch edited by Max Averitt, and published by Charles Scribner's Sons, New York. (1979, $7.95, ISBN 0-684-16159-1) This book has drawings and data for over 1400 power and sail boats. Although it doesn't cover every make, it is valuable for the drawings and data on current *and* older model boats -- the ones you may have trouble finding photographs of.

For best information, get a full description of the boat. Most likely, you'll start the gears in motion and then call the reporting source back for the details. *Don't hold up your initial action while you complete a lengthy check list.* This is particularly annoying to someone reporting a distress, and has caused numerous complaints in the past.

You get the basic information first: Name, Numbers, Type, Length, Rig, Colors of hull, decks, cabin, and trim, as well as the other items on your SAR Incident Check-off List. Then get the additional descriptive info., using the list below as a guide.

Manufacturer

Year built

Model (one or more of the following terms)

Sport Fisherman	Trawler
Double Cabin	Aft Cabin
Motor Yacht	Flying Bridge
Sedan	Flush Deck
Convertible	Houseboat
Express	

For Sailboats, be sure to get Class, Sail Numbers, and Sail color

Visible Equipment

Outriggers	Bow Pulpit
Radar	Tuna Tower
Bimini Top	Gin Pole
Dinghy	Liferaft
Bottom paint color	Boot top stripe

Many times the person reporting an overdue boat will not have a good description of it. Don't give up. The harbormaster, the owner of the boat in the next slip, or a friend usually is able to give a detailed list of equipment as well as the make and model. Seek out these people, study the photographs or drawings, look at a similar boat, and you will be very well equipped to brief that coxswain -- or search for the boat.

END OF THE SEA SICK BLUES

By CDR A. M. Steinman

Chief, Special Medical Operations Branch

Everyone has experienced sea-sickness at some time in his life, and most agree that little else makes you feel as bad. The pale, cold-sweaty, drowsy nausea that accompanies unrelenting dry heaves really puts a damper on your day. And although the common remedies such as fresh air, soda crackers, watching the horizon, and sucking on lemons may work for awhile, eventually the sea-sick blues usually win out. Even modern medicine has been remarkably unsuccessful in curing and preventing this age-old malady; medications like Dramamine or Meclizine are only partially effective, and both have side effects which leave you feeling drowsy.

But an end to Mal de Mer may be on the way. Recent medical research has shown that a combination of two common drugs is by far the most effective treatment available in preventing sea-sickness. These medications work much better than either Meclizine or Dramamine in Laboratory trials, but even more importantly, they work in the real world as well. A recent operational trial on ten Coast Guard air and boat crewmen riding a 44-foot MLB in heavy seas showed that no one who had taken the medications became sea-sick, whereas several of the other crewmen did. As for side effects of the drugs, only one of the crewmen taking medication noticed slight drowsiness. Similar operational tests on Navy and Air Force personnel showed the same results: The combination of these two medications provided a significant protection against sea-sickness.

The two drugs which work together so well (neither of which, incidentally, works by itself) are called promethazine (an antihistamine, commonly called Phenergan) and ephedrine (a common decongestant). For maximum effectiveness the medications should be taken one to two hours before getting underway, and at six hour intervals as needed thereafter. These medications should be available through your Group Medical Officer or Hospital Corpsman, and they have been added to the ship's Medical Allowance List. Commandant Instruction 6710 (series) contains more detailed information about these anti-motion sickness medications.

Coast Guard cutter personnel should have little problem taking the combination of the two drugs as recommended, one to two hours before getting underway or before getting into heavy seas. SAR boat crewmen, however, rarely have two hours advance notice of a SAR case. The medications will still work to some extent if taken immediately before getting underway, depending on how long it takes the boat to reach rough water. But SAR boat crewmen who are sensitive to sea-sickness should consider taking the medications throughout their duty days if the sea state and weather conditions make it likely that they will get sea-sick. Although taking any medication unnecessarily should be avoided, in this case it may be better to take the medication preventively rather than be incapacitated by sea-sickness on scene.

For further information about anti-motion sickness medication, contact Dr. Alan Steinman, Commandant (G-KOM-1), U.S. Coast Guard, Washington, D.C. 20593; FTS 472-5325.

MORE AID ON THE WAY FOR SEARCHERS

After a lengthy period of development, the Coast Guard issued new rules which will require boats to carry visual distress signals. The rules become effective on 1 January 1981. Therefore SAR personnel may expect that, during the coming year, more and more boats will become equipped with visual signals.

The rules require the signals on all boats 16 feet or more in length or any boat carrying six or less passengers. In this category, both day and night signals are required.

Boats less than 16 feet must only carry nightime signals, when operating at night.

The requirements apply to coastal waters of the United States --- coastal waters being defined as the Great Lakes and the territorial seas of the United States and the bays and sounds which empty into these waters. Rivers more than 2 miles wide at the mouth are included up to that point where the river narrows to 2 miles.

Among the approved signals for complying with the new rules are:

Day Only Signals

Floating Orange Smoke
Hand-held Orange Smoke
Orange flag with a black disc and square

Night Only Signals

Electric Distress Light which automatically signals SOS.

Day and Night Signals

Pistol-Projected Parachute Red Flare
Hand-Held Rocket-Propelled Parachute Red Flare
Red Aerial Pyrotechnic Flare

Detailed information on the rules may be found in the Federal Register, Vol. 44, No. 243, Monday, 17 December 1979.

We're All in the Same Boat!
Suggestion Savings Benefit Everyone

HANDLING CHARACTERISTICS of the 41' UTB

1. Introduction. The 41' UTB is a V-bottom boat with a modified planing hull, constructed of aluminum and fiberglass. It is powered by twin diesel engines. When all systems are working properly, the 41' UTB can easily be operated by one person in the commercial mode. Twin screws render the boat easily maneuverable; the experienced coxswain can steer, turn and dock this boat with minimal resource to rudder controls. Like all boats, however, it is a product of compromises and contradictory effects. Utility boats are designed for speed in relatively smooth water. They are designed with wide transoms for working space and planing lift. Such features, necessary for normal missions, can easily be disadvantages in some situations. Use the positive features, but be aware of possible negative reactions and control them or turn them to your advantage.

2. Speed. The maximum speed of the 41' UTB is 25-27 knots, depending on engine tuning and operating conditions. However, you should never exceed 90% of your boat's capability during normal operations; extra power is the boat's main defense in most threatening situations. If you are at full throttle, you have already squandered half your resources, if an emergency should then arise.

3. Stopping. In an extreme situation, the boat can be stopped very quickly by moving the throttles directly from ahead to full astern. Tests in 45 feet of water showed the boat able to stop from full ahead , within a space of seventy feet, elapsed time approximately 3 to 4 seconds.

WARNING

NEVER USE THIS PROCEDURE EXCEPT IN A DIRE EMERGENCY. EACH TIME, SOME ENGINE AND GEAR DAMAGE IS LIKELY, AND PERSONAL INJURY IS POSSIBLE.

4. Weathervaning. The 41' UTB has a tendency to back into the wind, due to its high superstructure in the fore part. If you sit dead in the water, any breeze will cause the boat to pivot on its propellers until the bow points in the direction the wind is blowing.

5. Following Seas or Surf.

a. Very careful handling is required when running in a following sea. The 41' tends to slip down the back of seas and heel strongly; when stern seas exceed 8 feet, the rudder is rather sluggish. If at all possible, avoid running directly before a swell; quarter the seas. The boat's small well deck makes swamping much less likely than in earlier boats where the well deck included the engine spaces, but the possibility is not eliminated.

b. In waves with a wide, regular pattern, ride the back of the swell. Never let the boat ride on the front of a wave. The UTB's wide, flat stern is more buoyant than the bow and the boat may begin to surf; pushed along on the front of the wave, the boat's tendency will be to dig in at the bow (and pitchpole) or come broadside to the wave (and broach).

WARNING

AVOID BREAKING WAVES AND SURF. The 41' UTB will take a 75° list, far more than other UTB's. However once past this point, it will capsize. Any close, steep swells will test all your skills. The combination of a sluggish rudder in heavy stern seas, the sail effect of your superstructure, and irregular wave action can easily cause your stern to fall off at a critical moment, resulting in broaching. This boat is not self-righting.

c. In following seas, a planing boat such as the 41-footer should, where possible, travel as fast as the seas, to prevent seas breaking over the stern. Avoid jumping over crests, for your vision ahead is lost as the bow drops into the trough. If you have to jump a crest, open the throttle as you reach the crest of the wave, to dig in and raise the bow. Close the throttle as you pass the trough, to allow the next swell to lift you and pass more quickly.

6. Head Seas.

a. Slow down and approach head seas at a slight angle; be prepared to straighten out quickly, to prevent a large wave from pushing you broadside. Adjust your speed as necessary to keep the propellers in the water. This minimizes strain on the hull and allows you to maintain control of the boat; time your progress so that the bow rises to meet the swells. At maximum sea conditions, eight feet and over, the coxswain must maneuver constantly.

b. Use only enough power to break through the crest; then cut back power to let the boat fall on the back side of the swell. Increase speed as the next wave approaches, to repeat the cycle.

c. Avoid at all costs, "flying through" the crest; if you are airborne on the back of a wave, severe stresses are placed on the hull and crew as you land; serious injuries are likely. Neither you nor the boat can survive repeated flights of this kind.

7. Beam Seas. If your course is broadside to heavy swells, tack across at a slight angle, zigzag fashion. Make each tack as long as possible, adjusting for the safest, most comfortable angle. In turning back, allow the boat to lose headway, then wheel hard over and apply power. The less time your stern faces the waves, the better.

8. Ice Operations.

WARNING

AVOID ICE EXCEPT IN EMERGENCIES.

a. The UTB was not designed as an icebreaker, and the resulting hull stress will shorten the life of the boat, even if the hull is not penetrated.

b. IF YOU MUST enter an ice field, proceed very cautiously and never exceed 700 RPM. The boat will break ice up to 1 1/2" without much difficulty.

CAUTION

Operating in ice requires a crewman in the engine space; slush clogs sea strainers every 3-5 minutes, and they must be continuously shifted and cleaned.

c. The boat is slowed markedly by 2" ice, and will be stopped dead in the water by field ice over 3" thick. It should be noted that the only way to tell the difference between 1" ice and 4" ice is by "feel" or by looking at broken ice at the stern of the boat. Since 4" ice can easily cause severe hull damage, feel your way carefully if you must enter ice.

UTB COMPETITION AT ST. PETERSBURG

During the period 15-17 October 1979, Coast Guard Group St. Petersburg, Florida held their second annual UTB Competition. UTB's from several group units participated in the program which served to evaluate both the boats and their crews. Personnel, boat, boat outfit and engineering inspections coupled with written and practical exercises set the stage for the predicted log run which served as the culmination for the competition. CG 41452 from Station St. Petersburg was the winner with CG 41431 from Station Yankeetown coming in second. The competition was keen and all participants enjoyed the event.

LETTER TO THE EDITOR

Editor, ON SCENE

In the "BOSN's Locker" in ON SCENE, 5/6-79, the suggestion is made that Danforth anchors be modified to permit use of an anchor trip-line by "all units which operate their boats where anchoring may be a problem..." First, is there any place where anchoring may not be a problem? It's not just coral or boulders, but wrecks, water logged tree trunks, somebody else's ground tackle, etc., which can snag your anchor. Beyond that, it is useful when setting a second anchor to know where the first one is; when anchoring in a crowded anchorage, to know where other vessel's anchors are; when getting underway to know where your own anchor is. To quote Knight's Modern Seamanship, "It is always good practice to make fast an anchor buoy to ...each anchor in making preparations for letting go."

CAPT J.L. Bender, USCGR (RET)

FROM THE 7th DISTRICT
Check List For CB Calls

As the result of a SAR Case Study, the 7th District distributed the CB Check List shown on the following page as the last page of a local Notice to Mariners. Group Miami also met with all local CB interests and provided them with the check list. During the case which was the subject of the SAR Case Study, the initial CB report provided insufficient information for search planning. Fortunately, the boat was found in spite of this.

SEVENTH COAST GUARD DISTRICT

CHECK LIST FOR "CB" RESCUE CALLS

DATE/TIME_____

REPORTING SOURCE

NAME_____

FCC CALL SIGN_____

OFFICIAL BOAT #_____

FREQUENCY (CHANNEL)_____

2. DESCRIPTION OF BOAT

NAME/NUMBER_____

TYPE_____

LENGTH_____

COLOR: HULL_____CABIN_____

DECK_____TRIM_____

SAIL #/COLOR_____

PROMINENT FEATURES: BOWSPRIT, OUTRIGGERS, ANTENNAS, FLYING BRIDGE, BOW RAIL, CANOPY, SWIM STEP, WIND SHIELD,

_____

PERSONS ON BOARD:

ADULT_____CHILDREN_____

NATURE OF DISTRESS

_____

4. LOCATION OF INCIDENT

_____

ADRIFT_____ANCHORED_____

5. OWNER/OPERATOR OF DISTRESS

NAME_____

ADDRESS_____

PHONE_____

6. SURVIVAL EQUIPMENT:

PFD'S	YES	NO
FLARES	YES	NO
FLASHLIGHT	YES	NO
RAFT AND COLOR	YES	NO
SKIFF	YES	NO
ANCHOR	YES	NO
SPOT LIGHT	YES	NO
RADAR REFLECTOR	YES	NO

7. IS ASSISTANCE BEING RENDERED?

BY WHOM_____

8. MISC INFO (CLOTHING, ELECTRONIC EQUIP.) ON SCENE WEATHER, CRUISING INFO (WHERE FROM, WHERE BOUND) SOMEONE ASHORE WITH INFO IN CASE OF LOST COMM RELATIVE, FRIEND, NEXT OF KIN, ETC.

_____

_____

PASS TO DISTRESSED VESSEL: "IF YOU RECEIVE ASSISTANCE FROM ANOTHER SOURCE AND ARE SAFELY ON THE SHORE, PLEASE CALL THE NEAREST CG STATION COLLECT."
FOR "CB" OPERATOR RECEIVING DISTRESS CALL: PLEASE CALL THE NEAREST CG STATION TO YOU COLLECT.

CHARLESTON.....803-724-4382 ASK FOR OOD
MAYPORT.....904-246-7341 ASK FOR OOD
MIAMI.....305-672-2021 ASK FOR OOD
KEY WEST.....305-296-2525 ASK FOR OOD
ST. PETERSBURG.....813-893-3333 ASK FOR OOD

SARSAT UPDATE

The Search and Rescue Satellite Demonstration Project (SARSAT) described in a previous issue, is well underway. The project centered at NASA Goddard Space Flight Center, Greenbelt, Maryland is being directed by a Program Steering Group made up of members from NASA, Department of Transportation (Coast Guard), Department of Defense (Air Force) and the National Oceanic and Atmospheric Administration (NOAA). An international flavor has been added with direct participation by Canada and France and a link-up with a somewhat similar effort in the Soviet Union. In this article we will try to update the information we published at an earlier date.

KEY ELEMENTS OF THE SYSTEM (See Figure 1)

Key elements of the system are:

1. Existing ELT/EPIRBs on 121.5/243 MHz.

2. An experimental ELT/EPIRB operating in the 406 to 406.1 MHz frequency band which was allocated for low power ELT/EPIRB-to-spacecraft communications by the World Administrative Radio Conference in 1971.

3. A satellite-borne frequency translation repeater for both the existing and experimental ELT/EPIRB bands (121.5, 243, 406 MHz) which, in conjunction with a local user terminal (LUT), will afford regional coverage for alerting and position determination. This repeater will take the incoming signals from existing ELT/EPIRBs and the experimental 406 MHz device and send them directly back to any terminal within range.

4. Local User Terminals (LUTs), associated with key rescue coordination centers (RCCs) to receive the signals from the repeater described in 3 and process it for position information, using doppler information.

5. A satellite-borne receiver and processor for the experimental 406 MHz ELT/EPIRB which will afford full-orbit coverage for alerting and position determination. This device will take signals from the experimental ELT/EPIRB anywhere in the world, process them for position information and store the information until it is dumped to the controlling ground station.

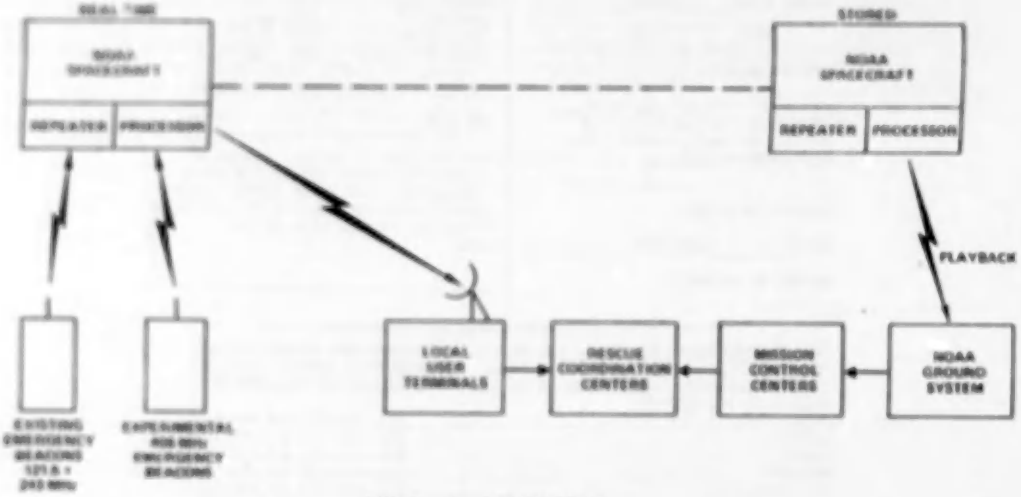

FIGURE 1 SARSAT SYSTEM

6. Spacecraft of the NOAA TIROS-N series which will carry the three-band repeater and the 406 MHz receiver/processor.

7. Mission Control Centers (MCCs) in the U.S., Canada and France for coordinating the flow of data.

8. The NOAA ground system which will provide spacecraft ephemeris data for LUT use and stored data from 406 MHz ELT/EPIRBs.

THE LOCAL COVERAGE (Figure 2)

Local coverage is that which will receive signals repeated directly back to an LUT by a spacecraft. If the spacecraft is in view of an LUT, the LUT receives the signal. Using time-lagged doppler information, the LUT calculates the ELT/EPIRB position. The alert and the position are forwarded to the appropriate RCC for action. During the search phase, the 121.5/243 MHz emissions from the ELT/EPIRB can be used for homing.

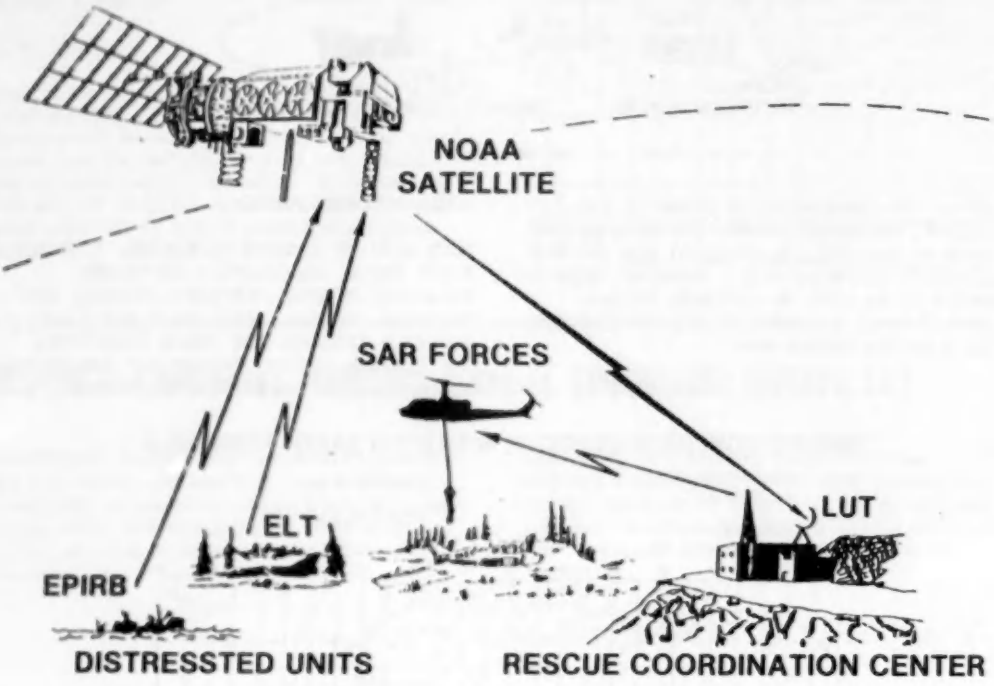

FIGURE 2 LOCAL COVERAGE

FULL EARTH COVERAGE (Figure 3)

Full earth coverage can only be achieved with the experimental 406 MHz ELT/EPIRB. This device transmits a relatively strong (about 5 watts) signal which lasts about 1/2 second and is repeated about every 50 seconds. The signal includes an identification of the craft in trouble and may also show the kind of trouble. In the satellite the signal is processed to compute the position; then the information is stored. When the satellite next passes over the NOAA Command and Data Acquisition (CDA) station, the information is dumped along with weather data.

FIGURE 1 FULL EARTH COVERAGE

During the demonstration phase of the project, no actual cases will be expected since no one will be carrying the 406 MHz ELT/EPIRB operationally. However, experimental units will be operated during planned tests in order to try the concept for possible future use.

LOCAL COVERAGE AREAS

LUTs will be located at Kodiak, Alaska; Point Reyes, California; Scott AFB, Illinois; Trenton, Ontario, Canada; and Toulouse, France. Figures 4 and 5 are coverage diagrams for these locations. The Mission Control Center for the United States will be located at Scott AFB.

GROUND COVERAGE CONTOUR WITH FOUR EARTH TERMINALS

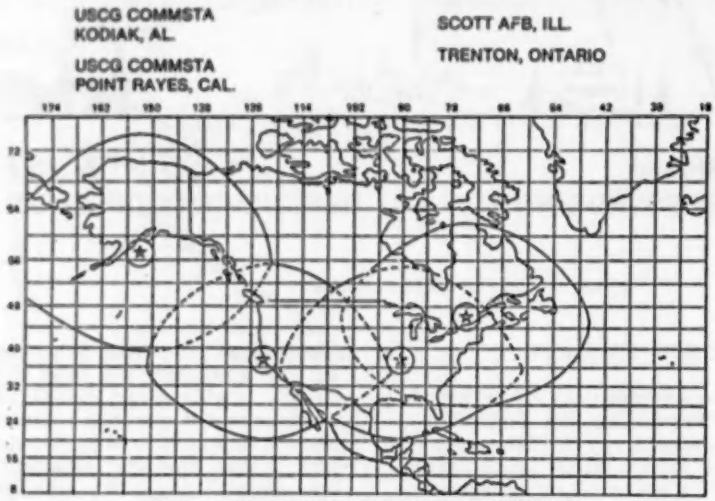

FIGURE 4 GROUND COVERAGE CONTOUR FOR U.S. AND CANADIAN LUT's

USSR SYSTEM

The SARSAT partners -- the U.S., Canada, and France -- have been working closely with agencies of the Soviet Union who are planning a somewhat similar system called COSPAS. The objective is to make it possible for each system to use the other. This would double the number of useful satellites during the demonstration phase to a maximum of four. Every satellite added to the galaxy decreases the waiting time for the local coverage system and gives a broader base on which to judge the need to proceed with an operational system later on.

TIME FRAME

The first launching will take place sometime in 1981 or 1982. A firm date cannot be planned because the host weather satellites are called up as they are needed for meteorological reasons. However, by the end of 1982 at least, we should have some idea of if and how well the system works.

Search and Rescue Satellite System

Ground Coverage Contour with One Earth Terminal

Toulouse, France

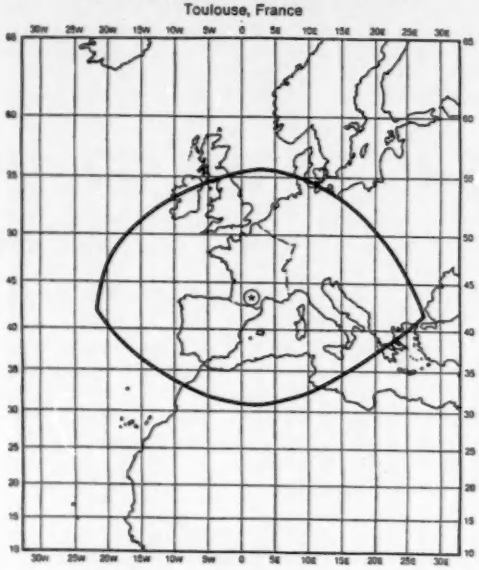

FIGURE 5 GROUND COVERAGE CONTOUR FOR FRENCH LUT

RESCUE and SURVIVAL SYSTEMS MANUAL (COMDTINST M10470.10)

COMMANDANT INSTRUCTION M10470.10 has been in the field for about a year. Some excellent suggestions have been received. Along with the suggestions have been calls stating that some units have not received their copy of the manual. If your unit has not received its copy address request to COMMANDANT (G-OSR-4). If you have any suggestions or questions you can use the post cards in the back of the manual or contact CWO MANESS (FTS) 426-1918.

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	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	3		3	3	3	3	3	3	2	2	2	2	3	3		1		1	1		5	6			2	
B		5	25		25	10	40	10	3	2	2	1	2	10	1	1	1		1	1						
C	5	3		3	1	1	1	1	5	1			1	1	2	1		1	1	2	1		1			
D	1			1			1			1	1	2		1	1		1			2	2	2		2	1	1
E											1	1		1												
F		1	1							1	1		1			1										
G																										
H	1	1	1		1	1																				

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